



measurement methods.

(1) Water Absorption capacity:

First, 0.2 g of water-absorbent resin was uniformly placed into a tea bag type bag (60 × 60 mm) and the opening portion of the bag was heat-sealed, and then the bag was immersed into a 0.9 wt % aqueous sodium chloride solution (physiological saline solution). Sixty minutes later, the bag was drawn up and the amount (W1 [g]) of the bag was measured after removing water by use of a centrifugal separator $(250\text{ G} (250 \times 9.81\text{ m/sec}^2))$ 3 minutes). In addition, the same procedure is carried out without using the water-absorbent resin, and then the amount (W0 [g]) of the bag was measured. The water absorption capacity (g/g) of the water-absorbent resin was calculated from these weights W1 and W0, and the following equation (a):

Water absorption capacity (g/g) = (W1 – W0) / (weight (g) of water-absorbent resin).

(2) Water-soluble content:

First, 0.50 g of water-absorbent resin was dispersed into 1,000 ml of deionized water and then stirred with a magnetic stirrer for 16 hours. Then, the resultant swollen gel was separated and filtrated with a filter paper. Next, the amount of water-soluble polymers into the resultant filtrate as obtained was determined by carrying out colloidal titration. The water-soluble content is represented by weight % of the water-absorbent resin.

(3) Absorption capacity under load:

The absorption capacity under a load is calculated from the weight of the physiological saline solution absorbed by water-absorbent resin under a load of 4.9 kPa (50 g/cm²) for 60 minutes. The detailed measurement